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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,728

10/03/2005

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61804A

5802

109 7590 01/03/2008
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Intellectual Property Section
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EXAMINER

PARVINI, PEGAH

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

01/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,728	Applicant(s) SAHA ET AL.	
	Examiner Pegah Parvini	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11, 33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 6-11 and 33-34 had been allowed over prior art in the previous Office Action; however, upon further consideration, said claims have been rejected as set forth below.

Claim Objections

1. Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation recited in dependent claim 7, "...wherein the property enhancing compound is talc", can be found in the independent claim 6.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. 2001/0038810 to Wallin et al. in view of US Patent Application Publication No. 2002/0095871 to McArdle et al.

4. Regarding claims 6 and 7, Wallin et al. teach porous ceramic grains which are substantially acicular in which an element such as Ce, Mg, Ca, iron, scandium, etc. may be incorporated into the lattice structure of the catalyst (paragraphs [0024], [0025], [0028], [0031], [0032]). Furthermore, Wallin et al. teach the use of precursor compounds such as clay, zeolites, alumina, silica, aluminum trifluoride, and fluorotopaz in the mixture when forming mullite porous catalyst support ([0045]). It is, further, noted that Wallin et al. disclose that in making such a porous catalyst support, precursor compounds are generally mixed, then shaped into a porous shape by any suitable method, and then is heated sufficiently to form the acicular ceramic grains of the support ([0043] to [0048]). In addition, Wallin et al. points to the fact that when the support is mullite, the precursor compounds contain Al, Si, and oxygen which are mixed to form a mixture capable of forming fluorotopaz and substantially mullite ([0043]). The mixture is heated under an atmosphere sufficient to form the porous catalyst support in the presence of fluorine, which is provided through the SiF₄ source ([0048]). Wallin et al., also, disclose that the metal elements are chemically bounded to the ceramic grains of the porous catalyst ([0037]). Additionally, Wallin et al. disclose that the acicular ceramic grains have a porosity of at least about 40 percent by volume ([0029]).

Furthermore, Wallin et al., in an example, disclose the use of platinum oxide in a very small amount of 0.84 gram per liter ([0061]).

Wallin et al. do not disclose the use of talc.

McArdle et al., drawn to making ceramic aggregate particles, disclose the use of silicates such as talc as one type of filler to affect the properties of the ceramic aggregate precursor particles ([0002], [0047], [0053]).

Thus, it would have been obvious to one of ordinary skill in the art to modify Wallin et al. in order to include talc as that taught by McArdle et al. motivated by the fact that fillers such as talc affect properties of ceramics such as hardness, porosity level, wear behavior, and more ([0053]).

5. Claims 8-11 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallin et al. in view of US Patent No. 4,526,886 to Joy, III.

6. Regarding claims 8-11 and 33-34, Wallin et al. teach porous ceramic grains which are substantially acicular in which an element such as Ce, Mg, Ca, iron, scandium, etc. may be incorporated into the lattice structure of the catalyst (paragraphs [0024], [0025], [0028], [0031], [0032]). Furthermore, Wallin et al. teach the use of precursor compounds such as clay, zeolites, alumina, silica, aluminum trifluoride, and fluorotopaz in the mixture when forming mullite porous catalyst support ([0045]). It is, further, noted that Wallin et al. disclose that in making such a porous catalyst support,

precursor compounds are generally mixed, then shaped into a porous shape by any suitable method, and then is heated sufficiently to form the acicular ceramic grains of the support ([0043] to [0048]). In addition, Wallin et al. points to the fact that when the support is mullite, the precursor compounds contain Al, Si, and oxygen which are mixed to form a mixture capable of forming fluorotopaz and substantially mullite ([0043]). The mixture is heated under an atmosphere sufficient to form the porous catalyst support in the presence of fluorine, which is provided through the SiF_4 source ([0048]). Wallin et al., also, disclose that the metal elements are chemically bounded to the ceramic grains of the porous catalyst ([0037]). Additionally, Wallin et al. disclose that the acicular ceramic grains have a porosity of at least about 40 percent by volume ([0029]). Furthermore, Wallin et al., in an example, disclose the use of platinum oxide in a very small amount of 0.84 gram per liter ([0061]).

Although Wallin et al. do not expressly disclose any of the other disclosed property enhancing compounds ([0031]-[0032]) which are mostly claimed in the instant application, it would have been obvious to a person of ordinary skill in the art to have used a different property enhancing compound and/or a mixture of them motivated by the fact that Wallin et al. disclose a number of different metal catalysts ([0031]-[0032]); therefore, they have the same functionality. The fact that Wallin et al. has only used one of such metals in their example does not suggest that other metals, disclosed for the same purpose by the same reference, are not suitable.

Wallin et al. although disclosing a wide variety of catalyst metals, is silent to the use of magnesium and neodymium and the ratio of the two metals (Nd/Mg) and silent to the ratio of Fe/Mg.

7. Joy, III., drawn to catalyst composites used to treat gaseous waste of internal combustion engines such as that of automobiles exhaust gas, disclose that said catalyst comprises platinum and/or palladium and, further, 0.01 to 25 wt.% of one or more base metals such as magnesium, iron, and neodymium (Abstract; column 1, lines 26-33; column 2, lines 20-50). Furthermore, Joy, III. discloses that in automobile exhaust gas where dimensional and structural stability is particularly desirable, the most preferred substrates are ceramic materials such as mullite (column 5, lines 52-68).

It should be noted that while Joy, III. does not expressly disclose a weight ratio of 0.1 to 10 or 0.2 to 5 for Nd/Mg, it discloses a range of 0.01 to 25 wt.%, based on the total metal content, of each one of them being present in the catalyst; thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to have utilized a content of Nd and Mg within the claimed range so to obtain a ratio within 0.1 to 20 or 0.2 to 5 wt% motivated by the fact that Joy, III. discloses that such base metals contribute to physical and/or thermal stability of the catalyst; moreover, motivated by the fact that the combination of metals is more effective in catalytic activities (column 2, lines 25-31, 33-36).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegah Parvini whose telephone number is 571-272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP


J.A. LORENGO
SUPERVISORY PATENT EXAMINER